



# STIC Search Report

EIC 1700

STIC Database Tracking Number: 151619

**TO: Nathan Nutter**

**Location: 10B75**

**Art Unit : 1711 10074**

**May 3, 2005**

**Case Serial Number: 10/643144**

**From: Usha Shrestha**

**Location: EIC 1700**

**REMSEN 4B28**

**Phone: 571/272-3519**

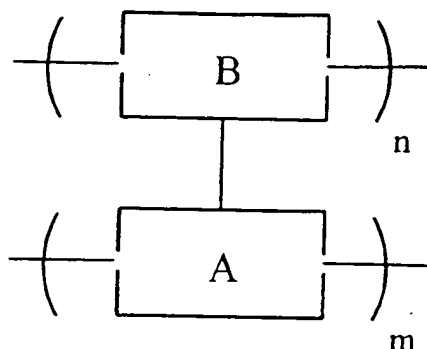
**usha.shrestha@uspto.gov**

## Search Notes

# CLAIMS

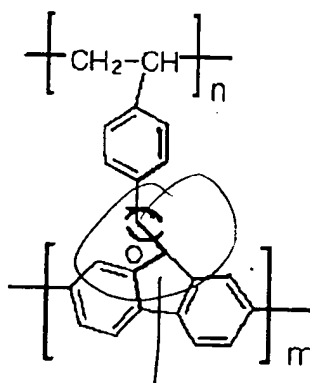
We claim:

1. A blue light-emitting polymer with ladder-type structure represented by the following formula:



- wherein A is selected from polyfluorene, polythiophene, polypyrrole, polycarbazole, polyphenylene, polyaniline, polypyridine; B is selected from polystyrene, polypyrrol, polycarbonate, polythiophene, polyphenylene, polyaniline, polypyridine, polycarbazole; n is an integer of 5 to 100; and m is an integer of 2 to 100.

2. The blue light-emitting polymers to claim 1, wherein A is polyfluorene with the following formula and B is polystyrene:



## SUBSTITUTE SPECIFICATION

wherein n is an integer of 5 to 100; and m is an integer of 2 to 100.

=> fil reg

FILE 'REGISTRY' ENTERED AT 16:21:42 ON 03 MAY 2005  
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=> d his ful

FILE 'HCAPLUS' ENTERED AT 13:15:04 ON 03 MAY 2005

E US20040079924/PN

L1 1 SEA ABB=ON PLU=ON US2004079924/PN  
D SCAN  
SEL RN

FILE 'REGISTRY' ENTERED AT 13:15:38 ON 03 MAY 2005

L2 10 SEA ABB=ON PLU=ON (30030-25-2/BI OR 42914-68-1/BI OR  
684215-56-3/BI OR 684215-57-4/BI OR 684215-58-5/BI OR  
684215-59-6/BI OR 684215-60-9/BI OR 684215-61-0/BI OR  
684215-62-1/BI OR 684215-63-2/BI)  
D SCAN

FILE 'REGISTRY' ENTERED AT 13:47:23 ON 03 MAY 2005

L3 114929 SEA ABB=ON PLU=ON PSTY/PCT  
L4 17767 SEA ABB=ON PLU=ON PC/PCT  
L5 713 SEA ABB=ON PLU=ON PPH/PCT  
E PYRROL/CN  
L6 1 SEA ABB=ON PLU=ON PYRROL/CN  
D RN  
L7 717 SEA ABB=ON PLU=ON 109-97-7/CRN  
E THIOPHENE/CN  
L8 1 SEA ABB=ON PLU=ON THIOPHENE/CN  
D RN  
L9 293 SEA ABB=ON PLU=ON 110-02-1/CRN  
E ANILINE/CN  
L10 1 SEA ABB=ON PLU=ON ANILINE/CN  
D RN  
L11 3877 SEA ABB=ON PLU=ON 62-53-3/CRN  
E PYRIDINE/CN  
L12 1 SEA ABB=ON PLU=ON PYRIDINE/CN  
D RN  
L13 6778 SEA ABB=ON PLU=ON 110-86-1/CRN  
E CARBAZOLE/CN  
L14 1 SEA ABB=ON PLU=ON CARBAZOLE/CN  
D RN  
L15 251 SEA ABB=ON PLU=ON 86-74-8/CRN  
E FLUORENE/CN  
L16 1 SEA ABB=ON PLU=ON FLUORENE/CN  
D RN  
L17 198 SEA ABB=ON PLU=ON 86-73-7/CRN  
L18 143865 SEA ABB=ON PLU=ON L3 OR L4 OR L5 OR L7 OR L9 OR L11  
OR L13 OR L15  
L19 12796 SEA ABB=ON PLU=ON L7 OR L9 OR L11 OR L13 OR L15 OR  
L17 OR L5  
L20 12599 SEA ABB=ON PLU=ON L18 AND L19  
L21 1 SEA ABB=ON PLU=ON L20 AND L2  
D SCAN  
L22 7 SEA ABB=ON PLU=ON L2 AND L18  
L23 1 SEA ABB=ON PLU=ON L2 AND L19

```

          D SCAN L22
L24      1 SEA ABB=ON  PLU=ON  L18 AND L17
          D SCAN
L25      7639 SEA ABB=ON  PLU=ON  L20 AND 2/NC
L26      SCR 1918
L*** DEL 0 S L2 AND L15
L27      1 SEA ABB=ON  PLU=ON  L2 AND L17
L28      1 SEA ABB=ON  PLU=ON  L3 AND L17
          D SCAN
          E STYRENE/CN
L29      1 SEA ABB=ON  PLU=ON  STYRENE/CN
          D SCAN
          D RN
L30      9302 SEA ABB=ON  PLU=ON  L20 NOT 1-5/M
          SAV L30 NUT144/A

FILE 'HCAPLUS' ENTERED AT 15:41:17 ON 03 MAY 2005
L31      36374 SEA ABB=ON  PLU=ON  L30
L32      365042 SEA ABB=ON  PLU=ON  L18
L33      40285 SEA ABB=ON  PLU=ON  L19
L34      40017 SEA ABB=ON  PLU=ON  L32 AND L33
L35      1 SEA ABB=ON  PLU=ON  L22
L36      10122 SEA ABB=ON  PLU=ON  L31(L) PREP?/RL
L37      45 SEA ABB=ON  PLU=ON  L36 AND LADDER?
L38      4 SEA ABB=ON  PLU=ON  L37 AND OPTIC?/SC,SX
          D FHITSTR
L39      444 SEA ABB=ON  PLU=ON  L36 AND OPTIC?/SC,SX
L40      4 SEA ABB=ON  PLU=ON  L39 AND LADDER?
L41      18 SEA ABB=ON  PLU=ON  L39 AND BLUE(2A)LIGHT?
          D FHITSTR
          D FHITSTR 2-3
L42      21 SEA ABB=ON  PLU=ON  L41 OR L40 OR L38
L43      16388 SEA ABB=ON  PLU=ON  L34 AND PREP?/RL
L44      717 SEA ABB=ON  PLU=ON  L43 AND OPTIC?/SC,SX
L45      4 SEA ABB=ON  PLU=ON  L44 AND LADDER?
L46      23 SEA ABB=ON  PLU=ON  L44 AND BLUE(2A)LIGHT?
L47      26 SEA ABB=ON  PLU=ON  L46 OR L45
L48      26 SEA ABB=ON  PLU=ON  L42 OR L47 OR L35
L49      1 SEA ABB=ON  PLU=ON  L37 AND BLUE(2A)LIGHT?
          D SCAN
L50      7 SEA ABB=ON  PLU=ON  L37 AND (ELECTROLUMIN? OR LUMINES?
          OR ?EMIT? OR LED OR OLED)
          D FHITSTR
          D FHITSTR 2-3
L51      29 SEA ABB=ON  PLU=ON  L48 OR L49 OR L50

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FILE 'REGISTRY' ENTERED AT 16:21:42 ON 03 MAY 2005

FILE HCAPLUS

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=> d que 131

L3	114929	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PSTY/PCT
L4	17767	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PC/PCT
L5	713	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PPH/PCT
L7	717	SEA FILE=REGISTRY	ABB=ON	PLU=ON	109-97-7/CRN
L9	293	SEA FILE=REGISTRY	ABB=ON	PLU=ON	110-02-1/CRN
L11	3877	SEA FILE=REGISTRY	ABB=ON	PLU=ON	62-53-3/CRN
L13	6778	SEA FILE=REGISTRY	ABB=ON	PLU=ON	110-86-1/CRN
L15	251	SEA FILE=REGISTRY	ABB=ON	PLU=ON	86-74-8/CRN
L17	198	SEA FILE=REGISTRY	ABB=ON	PLU=ON	86-73-7/CRN
L18	143865	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L3 OR L4 OR L5 OR L7 OR L9 OR L11 OR L13 OR L15
L19	12796	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L7 OR L9 OR L11 OR L13 OR L15 OR L17 OR L5
L20	12599	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L18 AND L19
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L31	36374	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L30

=> d que 134

L3	114929	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PSTY/PCT
L4	17767	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PC/PCT
L5	713	SEA FILE=REGISTRY	ABB=ON	PLU=ON	PPH/PCT
L7	717	SEA FILE=REGISTRY	ABB=ON	PLU=ON	109-97-7/CRN
L9	293	SEA FILE=REGISTRY	ABB=ON	PLU=ON	110-02-1/CRN
L11	3877	SEA FILE=REGISTRY	ABB=ON	PLU=ON	62-53-3/CRN
L13	6778	SEA FILE=REGISTRY	ABB=ON	PLU=ON	110-86-1/CRN
L15	251	SEA FILE=REGISTRY	ABB=ON	PLU=ON	86-74-8/CRN
L17	198	SEA FILE=REGISTRY	ABB=ON	PLU=ON	86-73-7/CRN
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L19	12796	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L7 OR L9 OR L11 OR L13 OR L15 OR L17 OR L5
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L33	40285	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L19
L34	40017	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L32 AND L33

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 16:22:25 ON 03 MAY 2005  
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=> d 151 1-29 ibib abs hitstr hitind

L51 ANSWER 1 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2005:25671 HCAPLUS  
DOCUMENT NUMBER: 142:298402  
TITLE: Poly(fluorene)s and poly(p-phenylene)s with  
pyrenyltriazine segments: synthesis and  
photophysics  
AUTHOR(S): Mikroyannidis, John A.; Persephonis, Peter G.;  
Giannetas, Vassilis G.

CORPORATE SOURCE: Chemical Technology Laboratory, Department of Chemistry, University of Patras, Patras, GR-26500, Greece

SOURCE: Synthetic Metals (2005), 148(3), 293-299  
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

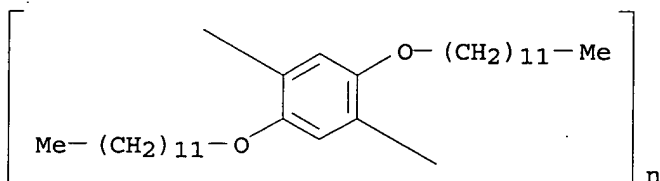
LANGUAGE: English

AB A Friedel-Crafts reaction between cyanuric chloride and pyrene afforded 2,4-dichloro-6-(pyren-1-yl)-1,3,5-triazine (1). This reacted with 4-bromophenol to yield 2,4-bis(4-bromophenoxy)-6-(pyren-1-yl)-1,3,5-triazine (2). A series of random copolymers PF-Pyr with various compns. were prepared by Suzuki polycondensation from 2,7-dibromo-9,9-di-2-ethylhexylfluorene (3) and 2. In addition, a series of random copolymers PP-Pyr were similarly prepared from 1,4-dibromo-2,5-didodecyloxybenzene (5) and 2. Solns. of copolymers PF-Pyr emitted **blue light** with photoluminescence (PL) maximum at 414-444 nm. Thin films of these copolymers emitted intense green light with PL maximum near 520 nm. An efficient energy transfer took place in thin films from the fluorene to the pyrenyltriazine segment even the content of the latter in copolymer was 0.5 mol%. Copolymers PP-Pyr behaved as **blue light**-emitting materials both in solution and solid state. Their PL maximum was red shifted with increasing the pyrenyltriazine content in copolymer. The PL quantum yields in solution were 0.42-0.56 for PF-Pyr and 0.27-0.35 for PP-Pyr.

IT 156028-49-8P, Poly[2,5-bis(dodecyloxy)-1,4-phenylene] (preparation, photophysics, and properties of poly(fluorene)s and poly(p-phenylene)s with pyrenyltriazine segments)

RN 156028-49-8 HCAPLUS

CN Poly[2,5-bis(dodecyloxy)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 73

IT 156028-49-8P, Poly[2,5-bis(dodecyloxy)-1,4-phenylene]  
847567-82-2P 847567-83-3P 847567-84-4P

(preparation, photophysics, and properties of poly(fluorene)s and poly(p-phenylene)s with pyrenyltriazine segments)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 2 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:833279 HCAPLUS

DOCUMENT NUMBER: 142:280471

TITLE: Conjugated Polymers with Linear and Hyperbranched Structures and Advanced Materials Properties

AUTHOR(S): Yip, Jacky Wing; Peng, Han; Haeussler, Matthias; Zheng, Ronghua; Tang, Ben

CORPORATE SOURCE: Department of Chemistry, Center for Display Research, Institute of Nano Science and Technology, Kowloon, Hong Kong

SOURCE: Molecular Crystals and Liquid Crystals (2004), 415, 43-60  
CODEN: MCLCD8; ISSN: 1542-1406

PUBLISHER: Taylor & Francis, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Alkyne polymns. are effected by tungsten- and tantalum-based catalysts, giving linear polyacetylenes (LPAs) and hyperbranched polyarylenes (HPAs) of high mol. wts. (Mw up to 2.5 + 105) in high yields (up to 93%). All the LPAs and HPAs are thermally stable and completely soluble in common solvents such as THF, toluene, dichloromethane, and chloroform. Incorporation of biphenyl mesogenic pendants into poly(1-phenyl-1-hexyne) structure endows the LCPA with nematicity. Upon photoexcitation, the LPAs and HPAs emit strong UV and **blue lights** with high quantum yields (up to 94%). Multilayer electroluminescence devices of LPAs emit **blue light** with maximum luminance and external quantum efficiency of 1065 cd/m<sup>2</sup> and 0.86%, resp. The HPAs attenuate strong laser pulses, with optical limiting performances comparable to that of C60, a well-known optical limiter.

IT 365568-89-4P 365568-91-8P  
(preparation and properties of polyacetylene conjugated polymers with linear and hyperbranched structures)

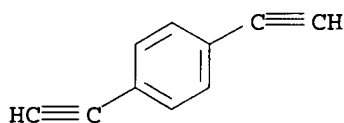
RN 365568-89-4 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with 1-octyne (9CI) (CA INDEX NAME)

CM 1

CRN 935-14-8

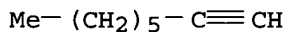
CMF C10 H6



CM 2

CRN 629-05-0

CMF C8 H14



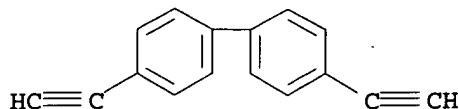
RN 365568-91-8 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-octyne (9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

CMF C16 H10



CM 2

CRN 629-05-0

CMF C8 H14

Me-(CH<sub>2</sub>)<sub>5</sub>-C≡CH

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73, 76

IT 365568-89-4P 365568-91-8P 365568-94-1P

516510-16-0P 847197-32-4P

(preparation and properties of polyacetylene conjugated polymers with linear and hyperbranched structures)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:352848 HCAPLUS

DOCUMENT NUMBER: 140:382864

TITLE: **Blue light-emitting, ladder-type**  
polymer with excellent heat stability

INVENTOR(S): Kwag, Gwang Hoon; Park, Eun Joo; Kim, Eun Il;  
Koh, Jae Young

PATENT ASSIGNEE(S): Korea Kumho Petrochemical Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 2004079924	A1	20040429	US 2003-643144	2003 0818
JP 2004143426	A2	20040520	JP 2003-303391	2003 0827
PRIORITY APPLN. INFO.:		KR 2002-65464	A	2002 1025

AB The invention relates to the **ladder-type blue**  
**light-emitting** polymers with excellent heat



stability which are polymerized either grafting with blue **luminescent** monomers on the polymer backbones or adding fluorene to styrene monomers. The above blue **light-emitting** polymers have a high glass transition temperature and a 5%-weight-loss temperature  $>400^{\circ}$ . Accordingly these polymers can be used as blue **luminescent** materials in the display devices and as **luminescent** cases for home appliances or cellular phones.

IT 684215-57-4P 684215-58-5P 684215-59-6P  
684215-60-9P 684215-61-0P 684215-62-1P  
684215-63-2P

(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

RN 684215-57-4 HCAPLUS

CN 9H-Fluorene, 2,7-dibromo-, polymer with  
(chloromethyl)ethenylbenzene, graft (9CI) (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



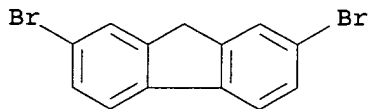
D1-CH<sub>2</sub>-Cl

D1-CH=CH<sub>2</sub>

CM 2

CRN 16433-88-8

CMF C13 H8 Br2



RN 684215-58-5 HCAPLUS

CN 9H-Fluorene, polymer with (chloromethyl)ethenylbenzene, graft  
(9CI) (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



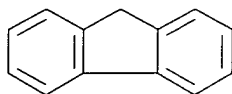
D1-CH<sub>2</sub>-Cl

D1-CH=CH<sub>2</sub>

CM 2

CRN 86-73-7

CMF C13 H10



RN 684215-59-6 HCAPLUS

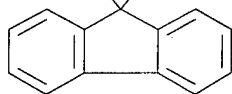
CN 9H-Fluorene, 9,9-dihexyl-, polymer with  
(chloromethyl)ethenylbenzene, graft (9CI) (CA INDEX NAME)

CM 1

CRN 123863-97-8

CMF C25 H34

Me-(CH<sub>2</sub>)<sub>5</sub>-(CH<sub>2</sub>)<sub>5</sub>-Me



CM 2

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



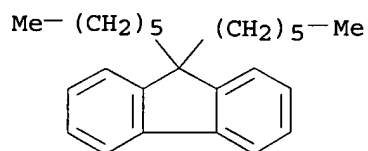
D1-CH<sub>2</sub>-Cl

D1-CH=CH<sub>2</sub>

RN 684215-60-9 HCAPLUS  
 CN 9H-Fluorene, 2,7-dibromo-, polymer with  
 (chloromethyl)ethenylbenzene and 9,9-dihexyl-9H-fluorene, graft  
 (9CI) (CA INDEX NAME)

CM 1

CRN 123863-97-8  
 CMF C25 H34



CM 2

CRN 30030-25-2  
 CMF C9 H9 Cl  
 CCI IDS

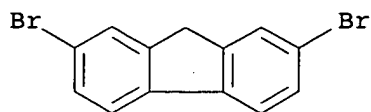


D1-CH<sub>2</sub>-Cl

D1-CH=CH<sub>2</sub>

CM 3

CRN 16433-88-8  
 CMF C13 H8 Br2



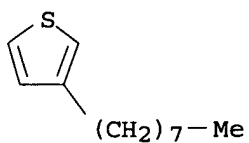
RN 684215-61-0 HCAPLUS

CN Thiophene, 3-octyl-, polymer with (chloromethyl)ethenylbenzene and 2,7-dibromo-9H-fluorene, graft (9CI) (CA INDEX NAME)

CM 1

CRN 65016-62-8

CMF C12 H20 S



CM 2

CRN 30030-25-2

CMF C9 H9 Cl

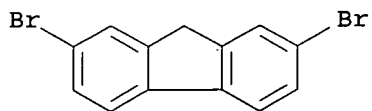
CCI IDS

D1-CH<sub>2</sub>-ClD1-CH=CH<sub>2</sub>

CM 3

CRN 16433-88-8

CMF C13 H8 Br2



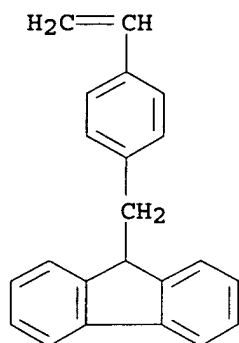
RN 684215-62-1 HCAPLUS

CN 9H-Fluorene, 9-[(4-ethenylphenyl)methyl]-, homopolymer, syndiotactic (9CI) (CA INDEX NAME)

CM 1

CRN 684215-56-3

CMF C22 H18



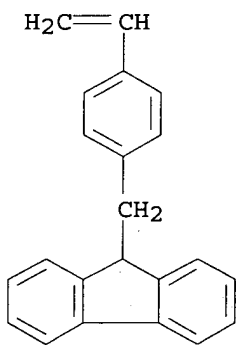
RN 684215-63-2 HCAPLUS

CN 9H-Fluorene, 9-[(4-ethenylphenyl)methyl]-, polymer with ethenylbenzene, syndiotactic, graft (9CI) (CA INDEX NAME)

CM 1

CRN 684215-56-3

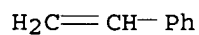
CMF C22 H18



CM 2

CRN 100-42-5

CMF C8 H8



IC ICM C09K011-06

INCL 252301350

CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 37, 74

ST blue light emitting ladder  
polymer heat stability

IT Conducting polymers  
Electroluminescent devices  
(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

IT Ladder polymers  
(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

IT Luminescent substances  
(electroluminescent polymers; blue  
light-emitting, ladder-type polymer  
for electroluminescent device)

IT 30030-25-2 42914-68-1  
(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

IT 684215-56-3P  
(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

IT 684215-57-4P 684215-58-5P 684215-59-6P  
684215-60-9P 684215-61-0P 684215-62-1P  
684215-63-2P  
(blue light-emitting,  
ladder-type polymer for electroluminescent  
device)

L51 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:977868 HCAPLUS

DOCUMENT NUMBER: 140:206715

TITLE: Chain-length dependent para-phenylene film-  
and needle-growth on dielectrics

AUTHOR(S): Balzer, F.; Rubahn, H.-G.

CORPORATE SOURCE: Institut fur Physik/ASP, Humboldt-Universitat  
zu Berlin, Berlin, D-12489, Germany

SOURCE: Surface Science (2004), 548(1-3), 170-182

CODEN: SUSCAS; ISSN: 0039-6028

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

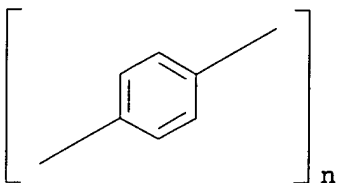
LANGUAGE: English

AB Surface unit cells of vacuum grown ultrathin films of blue  
-light emitting para-phenylene oligomers on alkali  
halides and on muscovite mica were determined using LEED. Both, films  
from upright and from laying mols. are grown on alkali halide (1 0  
0) and mica (0 0 1) single crystal faces. On alkali halide (1 0  
0) faces the ordered growth of upright phenylene mols. with  
several rotational domains is observed, whereas on mica (0 0 1)  
single crystalline aggregates (nanofibers) of laying mols. are formed.  
Their mutual parallel orientation is strictly determined by the  
orientation of mica surface dipoles. Structural information from  
diffraction expts. is complemented by morphol. information using  
fluorescence- and atomic force microscopy as well as UV/visible  
absorption spectroscopy.

IT 25190-62-9P, Poly(1,4-phenylene)  
(chain-length dependent para-phenylene film- and needle-growth  
on dielects.)

RN 25190-62-9 HCAPLUS

CN Poly(1,4-phenylene) (9CI) (CA INDEX NAME)



CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 36, 66, 76

IT 25190-62-9P, Poly(1,4-phenylene)

(chain-length dependent para-phenylene film- and needle-growth on dielects.)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:671141 HCAPLUS

DOCUMENT NUMBER: 139:180854

TITLE: Copolymer comprising meta-phenylene unit and ortho-phenylene unit

INVENTOR(S): Yamamoto, Ryuichi; Arai, Takashi

PATENT ASSIGNEE(S): Japan Science and Technology Corporation, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003238666	A2	20030827	JP 2002-46564	

2002  
0222

PRIORITY APPLN. INFO.: JP 2002-46564

2002  
0222

AB The organic solvent-soluble copolymer consists of 20-95% nonsubstituted m-phenylene units and balance nonsubstituted o-phenylene units, which shows good heat resistance and blue light emission under UV irradiation. Thus, 8:2 mixture of m-dibromobenzene and o-dibromobenzene were polymerized in the presence of Mg and NiCl<sub>2</sub>(2,2'-bipyridine) in refluxed THF for 24 h to give the copolymer, whose solution was cast to give a film showing fluorescence at  $\lambda_{\text{max}}$  350 nm.

IT 581772-64-7P, m-Dibromobenzene-o-dibromobenzene copolymer (solvent-soluble copolymer comprising meta-phenylene unit and ortho-phenylene unit showing fluorescence)

RN 581772-64-7 HCAPLUS

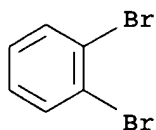
CN Benzene, 1,2-dibromo-, polymer with 1,3-dibromobenzene (9CI) (CA

## INDEX NAME)

CM 1

CRN 583-53-9

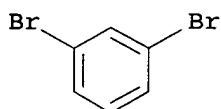
CMF C6 H4 Br2



CM 2

CRN 108-36-1

CMF C6 H4 Br2



IC ICM C08G061-10

ICS H05B033-14; C09K011-06

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 38, 73

IT 581772-64-7P, m-Dibromobenzene-o-dibromobenzene copolymer  
(solvent-soluble copolymer comprising meta-phenylene unit and  
ortho-phenylene unit showing fluorescence)

L51 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:893956 HCAPLUS

DOCUMENT NUMBER: 139:101494

TITLE: Synthesis and optical properties of  
hyperbranched polyaryleneAUTHOR(S): Peng, Han; Luo, Jingdong; Cheng, Lin; Lam,  
Jacky W. Y.; Xu, Kaitian; Dong, Yuping; Zhang,  
Dezhen; Huang, Yi; Xu, Zhongde; Tang, Ben  
ZhongCORPORATE SOURCE: Institute of Nano Science, Open Laboratory of  
Chirotechnology, Institute of Molecular  
Technology for Drug Discovery and Synthesis,  
Department of Chemistry, Hong Kong University  
of Science and Technology, Clear Water Bay,  
Kowloon, Hong KongSOURCE: Optical Materials (Amsterdam, Netherlands)  
(2003), 21(1-3), 315-320

CODEN: OMATET; ISSN: 0925-3467

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High mol. weight, hyperbranched polyarylene were synthesized in high  
isolation yields by the copoly-cyclotrimerization of  
2,5-diethynyl-thiophene (1), 4,4'-biphenyl-diyne (2), and



2,7-diethynyl-fluorene (3) with 1-heptyne (4) and 1-dodecyne (5) using  $\text{TaCl}_5\text{-Ph}_4\text{Sn}$  as the catalyst in toluene. The structures of the polymers were characterized by IR, NMR, TGA, and UV analyses. All the polymers exhibited outstanding thermal stability and emitted strong blue light, whose intensities are higher than that of poly(1-phenyl-1-octyne), a well-known highly emissive polyacetylene. Little red shift was observed in the photoluminescence of the polymer thin films. The polymers strongly attenuated intense pulses of 532 nm laser pulses.

IT 365568-91-8P

(hyperbranched; synthesis and optical properties of hyperbranched polyarylene)

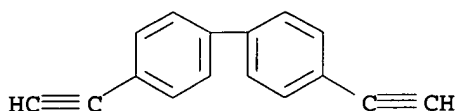
RN 365568-91-8 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-octyne (9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

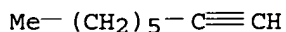
CMF C16 H10



CM 2

CRN 629-05-0

CMF C8 H14



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73

IT 365568-91-8P 365568-95-2P 560134-61-4P

(hyperbranched; synthesis and optical properties of hyperbranched polyarylene)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:728858 HCAPLUS

DOCUMENT NUMBER: 137:255082

TITLE: Heat-resistant low-crystallinity adamantane derivative and its use for organic electroluminescent device with high luminescent efficiency and long service life

INVENTOR(S): Takeuchi, Hisato; Tanaka, Hiromitsu; Mouri, Makoto; Mori, Tomohiko; Kojima, Kazushige

PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan; Denso Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

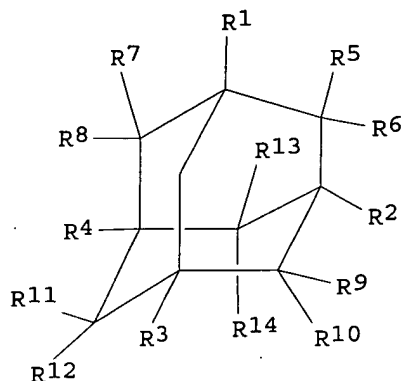
CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002275103	A2	20020925	JP 2001-81434	2001 0321

PRIORITY APPLN. INFO.: JP 2001-81434  
 2001  
 0321

OTHER SOURCE(S): MARPAT 137:255082  
 GI



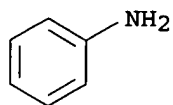
I

AB Title derivative is expressed by a general formula I ( $\geq 3$  of R1-R14 = functional units having hole-transporting, luminous, or electron-transporting properties). The electroluminescent device has  $\geq 1$  layer containing the adamantane derivative between electrodes. Thus, an electroluminescent device containing tetrapyrenyl-substituted adamantane as an electroluminescent layer and NPD as a hole-transporting layer emitted **blue light** with luminance 350 cd/m<sup>2</sup> at 10 mA/cm<sup>2</sup>.

IT 142-04-1, Aniline hydrochloride  
 (preparation of adamantane derivative for organic electroluminescent device with high luminescent efficiency and long service life)

RN 142-04-1 HCAPLUS

CN Benzenamine, hydrochloride (9CI) (CA INDEX NAME)



● HCl

IC ICM C07C013-68  
ICS C07C025-22; C07C211-50; C09K011-06; H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 24  
IT 62-53-3, Aniline, reactions 142-04-1, Aniline  
hydrochloride 32446-12-1, 1-Bromoadamantan-2-one 39751-07-0,  
2,6-Adamantanedione 164461-18-1  
(preparation of adamantane derivative for organic electroluminescent device  
with high luminescent efficiency and long service life)

L51 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:626665 HCAPLUS  
DOCUMENT NUMBER: 138:17757  
TITLE: Hyperbranched polyphenylenes containing  
biphenyl moieties: Synthesis, light emission,  
and optical limiting  
AUTHOR(S): Peng, Han; Lam, Jacky-Yip; Chen, Junwu; Zheng,  
Yonghua; Luo, Jingdong; Xu, Kaitian; Tang, Ben  
Zhong  
CORPORATE SOURCE: Institute of Nano Science and Technology, Hong  
Kong University, Kowloon, Peop. Rep. China  
SOURCE: Polymer Preprints (American Chemical Society,  
Division of Polymer Chemistry) (2002), 43(2),  
1318-1319  
CODEN: ACPPAY; ISSN: 0032-3934  
PUBLISHER: American Chemical Society, Division of Polymer  
Chemistry  
DOCUMENT TYPE: Journal; (computer optical disk)  
LANGUAGE: English

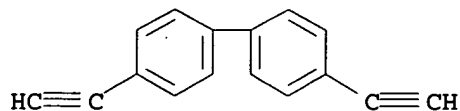
AB A series of hyperbranched polyphenylenes were synthesized by  
TaCl<sub>5</sub>- and NbCl<sub>5</sub>-catalyzed copolycyclotrimerizations of a  
4,4'-diethynylbiphenyl with different monoacetylenes or monoynes.  
These copolymers have good solubility in common organic solvents including  
THF, toluene, chloroform and DCM, and possess excellent thermal  
stability. All the polyphenylenes effectively limit the 8-ns  
pulses of 532 nm laser light and all emit strong deep-blue  
light of ≈400 nm when excited at 345 nm. These  
novel hyperbranched polymers are thus excellent optical materials  
with high thermal stability.

IT 76307-47-6P 477587-90-9P 477587-91-0P  
(synthesis, light emission, and optical limiting of  
hyperbranched polyphenylenes containing biphenyl moieties)

RN 76307-47-6 HCAPLUS  
CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with ethynylbenzene (9CI)  
(CA INDEX NAME)

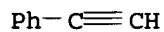
CM 1

CRN 38215-38-2  
CMF C16 H10



CM 2

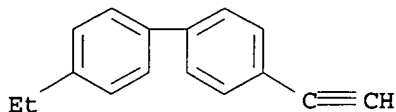
CRN 536-74-3  
CMF C8 H6



RN 477587-90-9 HCAPLUS  
CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 4-ethyl-4'-ethynyl-1,1'-biphenyl (9CI) (CA INDEX NAME)

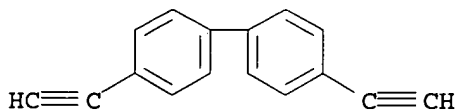
CM 1

CRN 477587-89-6  
CMF C16 H14



CM 2

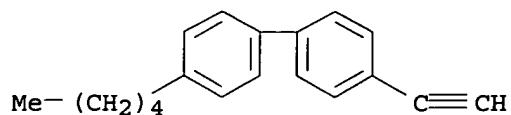
CRN 38215-38-2  
CMF C16 H10



RN 477587-91-0 HCAPLUS  
CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 4-ethynyl-4'-pentyl-1,1'-biphenyl (9CI) (CA INDEX NAME)

CM 1

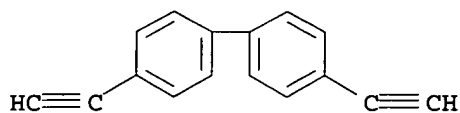
CRN 80563-43-5  
CMF C19 H20



CM 2

CRN 38215-38-2

CMF C16 H10



IT 365568-92-9P

(synthesis, light emission, and optical limiting of  
hyperbranched polyphenylenes containing biphenyl moieties)

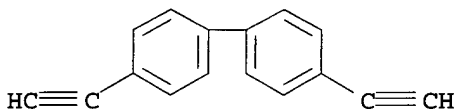
RN 365568-92-9 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-dodecyne (9CI) (CA  
INDEX NAME)

CM 1

CRN 38215-38-2

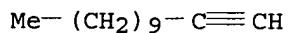
CMF C16 H10



CM 2

CRN 765-03-7

CMF C12 H22

CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other  
Related Properties)

Section cross-reference(s): 36, 38

IT 76307-47-6P 477587-90-9P 477587-91-0P

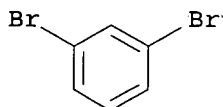
(synthesis, light emission, and optical limiting of  
hyperbranched polyphenylenes containing biphenyl moieties)

IT 365568-92-9P

(synthesis, light emission, and optical limiting of  
hyperbranched polyphenylenes containing biphenyl moieties)REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE

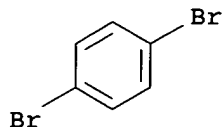
## IN THE RE FORMAT

L51 ANSWER 9 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:453881 HCAPLUS  
DOCUMENT NUMBER: 137:208033  
TITLE: Combinatorial synthesis and screening for blue  
luminescent  $\pi$ -conjugated polymer thin film  
AUTHOR(S): Muramatsu, Yukiko; Yamamoto, Takakazu;  
Hayakawa, Tomohiro; Koinuma, Hideomi  
CORPORATE SOURCE: CREST - Japan Science and Technology  
Corporation, Kawaguchi, Saitama, 332-0012,  
Japan  
SOURCE: Applied Surface Science (2002), 189(3-4),  
319-326  
CODEN: ASUSEE; ISSN: 0169-4332  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Two series of random copolymers (poly(PP-ran-MP)s which consist of  
p-phenylene, PP, and m-phenylene, MP, units and poly(PPy-ran-MPy)s  
which consist of p-pyridine, PPy, and m-pyridine, MPy, units) with  
various monomeric unit ratios were prepared Thin films of  
poly(PP-ran-MP)s were combinatorially deposited by vacuum evaporation  
with a fixed mask and slit masks on a quartz glass, and  
poly(PPy-ran-MPy)s were superposed on the poly(PP-ran-MP)s layer.  
The thin film of poly(PP-ran-MP) containing the PP and MP units in a  
5:5 ratio, poly(PP-ran-MP-5/5), showed 7.6 times stronger blue  
photoluminescence (PL), compared with the thin films of  
poly(p-phenylene), PPP, and poly(m-phenylene), PMP, homopolymers.  
The PL intensity of the film of poly(PP-ran-MP-5/5) was much  
stronger than the sum of the PL intensities of the films of PPP  
and PMP. Furthermore, [poly(m-pyridine), PMPy/poly(PP-ran-MP-  
5/5)] bi-layer film emitted blue light of  
about 3 times stronger intensity than the poly(PP-ran-MP-5/5)  
monolayer film. An alternating copolymer of p-phenylene and  
m-phenylene, poly(PP-alt-MP-5/5) was prepared by a Stille coupling  
reaction and its PL peak was observed at about 50 nm shorter  
wavelength than that of poly(PP-ran-MP-5/5).  
IT 148601-77-8P, 1,4-Dibromobenzene-1,3-dibromobenzene  
copolymer  
(combinatorial synthesis and screening for blue luminescent  
 $\pi$ -conjugated polymer thin film)  
RN 148601-77-8 HCAPLUS  
CN Benzene, 1,3-dibromo-, polymer with 1,4-dibromobenzene (9CI) (CA  
INDEX NAME)  
CM 1  
CRN 108-36-1  
CMF C6 H4 Br2



CM 2

CRN 106-37-6  
CMF C6 H4 Br2



CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38  
IT 148601-77-8P, 1,4-Dibromobenzene-1,3-dibromobenzene copolymer 452309-08-9P, 2,5-Dibromopyridine-3,5-dibromopyridine copolymer 452309-09-0P, 1,4-Bis(trimethylstannyl)benzene-1,3-dibromobenzene copolymer  
(combinatorial synthesis and screening for blue luminescent  $\pi$ -conjugated polymer thin film)  
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 10 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:408987 HCAPLUS  
DOCUMENT NUMBER: 136:408818  
TITLE: Electroluminescent devices using organometallic complex emitting layers  
INVENTOR(S): Kathirgamanathan, Poopathy  
PATENT ASSIGNEE(S): Elam-T Limited, UK  
SOURCE: PCT Int. Appl., 54 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002043446	A1	20020530	WO 2001-GB5111	2001 1121
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002023077	A5	20020603	AU 2002-23077	2001 1121
EP 1336325	A1	20030820	EP 2001-997975	

2001  
1121

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
JP 2004515042 T2 20040520 JP 2002-545036

2001  
1121

US 2004023062 A1 20040205 US 2003-442663

2003  
0520

PRIORITY APPLN. INFO.: GB 2000-28439 A

2000  
1121

WO 2001-GB5111 W

2001  
1121

AB Electroluminescent devices are described which comprise a first electrode, a hole-transporting layer formed of material which emits light in the blue spectrum, an electroluminescent layer incorporating a rare earth complex with an organic ligand, and a second electrode.

IT 25233-30-1, Polyaniline  
(electroluminescent devices using rare earth organometallic complex emitting layers)

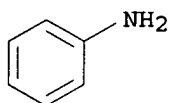
RN 25233-30-1 HCAPLUS

CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3

CMF C6 H7 N



IC ICM H05B033-14

ICS H01L051-20; C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

IT 905-62-4 2085-33-8, Tris(8-hydroxyquinolinato)aluminum  
5521-31-3D, derivs. 7429-90-5, Aluminium, uses 7439-93-2,  
Lithium, uses 7440-19-9D, Samarium, compds. 7440-27-9D,  
Terbium, compds. 7440-70-2, Calcium, uses 15082-28-7  
23467-27-8 25067-59-8, Poly(vinylcarbazole) 25233-30-1  
, Polyaniline 25387-93-3 37271-44-6 50926-11-9, ITO  
58280-31-2 58328-31-7D, derivs. 65181-78-4, TPD  
105389-36-4D, derivs. 123847-85-8,  $\alpha$ -NPD 123847-85-8D,  
 $\alpha$ -NPD, derivs. 123847-87-0D, derivs. 124729-98-2, Mtdata  
134917-82-1 135804-06-7 138372-67-5 142289-08-5D, derivs.  
146162-54-1 148044-16-0 148896-39-3 150405-69-9  
156952-11-3 182069-71-2 203642-12-0D, derivs. 214341-85-2D,  
derivs. 431947-33-0

(electroluminescent devices using rare earth organometallic



complex emitting layers)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:832337 HCAPLUS

DOCUMENT NUMBER: 136:102940

TITLE: Linear and hyperbranched polymers with high  
thermal stability and luminescence efficiency

AUTHOR(S): Lam, Jacky Wing Yip; Luo, Jing-Dong; Peng,  
Han; Xie, Zhi-Liang; Xue, Kai-Tian; Dong,  
Yu-Ping; Cheng, Lin; Qiu, Cheng-Feng; Kwok,  
Hoi Sing; Tang, Ben-Zhong

CORPORATE SOURCE: Department of Chemistry, Hong Kong University  
of Science and Technology, Hong Kong, Peop.  
Rep. China

SOURCE: Chinese Journal of Polymer Science (2001),  
19(6), 585-590

CODEN: CJPSEG; ISSN: 0256-7679

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New acetylene monomers, 6-{[(1-naphthylethynyl-4-  
phenyl)carbonyl]oxy}-1-phenyl-1-hexyne (1), 2,5-diethynylthiophene  
(3), and 4,4'-diethynylbiphenyl (6) were synthesized. Homopolymn.  
of 1 and copolycyclotrimerizations of 3 and 6 with 1-heptyne and  
1-octyne have been achieved with WCl<sub>6</sub>- and TaCl<sub>5</sub>-Ph<sub>4</sub>Sn catalysts,  
resp., giving soluble linear disubstituted polyacetylene (2) and  
hyperbranched polyarylenes (5 and 8) with high mol. wts. (up to  
1.2 + 105) in high yields (up to 98%). The structures and  
properties of the polymers are characterized and evaluated by IR,  
NMR, TGA, UV, photoluminescence (PL), and electroluminescence (EL)  
analyses. All the polymers possess high thermal stability and  
emit strong **blue light** upon photoexcitation.

The intensity of the emitted light is greater than that of  
poly(1-phenyl-1-octyne), a well-known highly luminescent  
disubstituted polyacetylene. Little aggregation-induced red shift  
in the PL was observed in the thin films of the polymers. By  
constructing a multi-layer EL device, high EL quantum yield  
(0.18%) has been achieved in 2, which are the best results for  
substituted polyacetylenes attainable so far.

IT 365568-91-8P

(hyperbranched; preparation and luminescence efficiency of linear  
and hyperbranched polymers with high thermal stability)

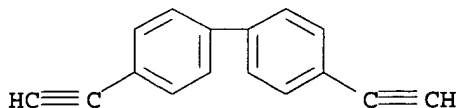
RN 365568-91-8 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-octyne (9CI) (CA  
INDEX NAME)

CM 1

CRN 38215-38-2

CMF C16 H10



CM 2

CRN 629-05-0

CMF C8 H14

Me- (CH<sub>2</sub>)<sub>5</sub>-C≡CH

CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 35, 73

IT 365568-91-8P 372075-44-0P

(hyperbranched; preparation and luminescence efficiency of linear and hyperbranched polymers with high thermal stability)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:763374 HCAPLUS

DOCUMENT NUMBER: 135:310707

TITLE: Oligomeric and polymeric OLED materials produced via arylation of quinones

INVENTOR(S): Koch, George C.

PATENT ASSIGNEE(S): Honeywell International Inc., USA

SOURCE: PCT Int. Appl., 57 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001078162	A2	20011018	WO 2001-US11793	2001 0410
WO 2001078162	A3	20020221		
W: JP, KR				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 2002037428	A1	20020328	US 2001-833201	2001 0410
US 6784322	B2	20040831		
EP 1196956	A2	20020417	EP 2001-930478	2001 0410
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2003530366	T2	20031014	JP 2001-574917	2001 0410
PRIORITY APPLN. INFO.: US 2000-195902P P				
2000 0410				

WO 2001-US11793

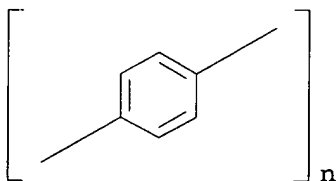
W

2001

0410

OTHER SOURCE(S): MARPAT 135:310707

- AB Organic light-emitting device materials are described by the general formula  $R1-(Ari)_n-R2$  ( $n = 5-15$ ;  $i = 1-n$  and denotes the position downstream from  $R1$ ; each  $Ari =$  independently selected (un)substituted aryl;  $R1$  and  $R2 =$  substituents that increase the solubility of the para-phenylene compound in nonpolar organic solvents relative to the solubility of the corresponding compound wherein  $R1$  and  $R2$  are hydrogen; with the proviso that the  $Ari$  groups are linked together in a 1,4-paraphenylene manner). Preferably, the  $Ari$  include benzoquinone or hydroquinone units. Methods of preparing the polymeric materials on a solid support are described which entail contacting a solid support-bound aryl diazonium salt with 3,6-dichloroquinone under conditions sufficient to form a solid support-bound aryl quinone derivative; and contacting the solid support-bound aryl quinone derivative with a selected diazonium compound under conditions sufficient to form an intermediate material; repeating the preceding steps 2-70 times; and terminating the polymeric material by contacting the product with a terminating diazonium compound. The materials may be oligomers or block copolymers. Branched polymeric aromatic compds. comprising tetrasubstituted Ph rings with substituents at the 1, 2, 4, and 5 positions which are described by the general formula  $R-(Ari)_n'-$  ( $R =$  (un)substituted C1-12 alkyl, (un)substituted C1-12 alkoxy, Ph, or halo; and  $n' = 3-8$ ) and polyfurano ladder oligomers are also described. Methods of producing light-emitting polymers are also described which entail photopolymerization of the oligomers.
- IT 25190-62-9DP, Poly(1,4-phenylene), derivs.  
(oligomeric and polymeric electroluminescent materials and their production)
- RN 25190-62-9 HCAPLUS
- CN Poly(1,4-phenylene) (9CI) (CA INDEX NAME)



- IC ICM H01L051-30
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 38, 76
- ST electroluminescent material oligomeric polymeric;  
quinoline deriv polymer electroluminescent material
- IT Polymers, uses  
(aromatic; oligomeric and polymeric electroluminescent materials and their production)
- IT Phosphors  
(electroluminescent; oligomeric and polymeric electroluminescent materials and their production)
- IT Polymers, uses

(heterocyclic; oligomeric and polymeric  
**electroluminescent** materials and their production)

IT Arylation  
**Electroluminescent** devices  
(oligomeric and polymeric **electroluminescent**  
materials and their production)

IT Oligomers  
(oligomeric and polymeric **electroluminescent**  
materials and their production)

IT Quinones  
(polymers; oligomeric and polymeric **electroluminescent**  
materials and their production)

IT 71-43-2DP, Benzene, aryl derivs., uses 106-51-4DP,  
2,5-Cyclohexadiene-1,4-dione, derivs., polymers 123-31-9DP,  
Hydroquinone, derivs., polymers 25086-73-1DP, derivs.  
**25190-62-9DP**, Poly(1,4-phenylene), derivs.  
(oligomeric and polymeric **electroluminescent**  
materials and their production)

IT 615-93-0  
(oligomeric and polymeric **electroluminescent**  
materials and their production)

L51 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:585225 HCAPLUS

DOCUMENT NUMBER: 135:304376

TITLE: Light emitting and optical limiting properties  
of hyperbranched polyphenylenes

AUTHOR(S): Peng, Han; Luo, Jingdong; Cheng, Lin; Xu,  
Kaitain; Jia, Demin; Zhang, Dezhen; Xu,  
Zhongde; Tang, Ben Zhong

CORPORATE SOURCE: Department of Chemistry, Hong Kong University  
of Science and Technology, Hong Kong, Peop.  
Rep. China

SOURCE: Polymeric Materials Science and Engineering  
(2001), 85, 383-384

CODEN: PMSEDG; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New hyperbranched polyphenylenes with high mol. wts. were  
synthesized by copolycyclotrimerization of diynes with monoynes  
with various aromatic and aliphatic groups. The structures and  
properties of the copolymers are characterized and evaluated by  
IR, UV, NMR, TGA and fluorescence analyses. The results indicate  
that these copolymers have good solubility in common organic solvents,  
excellent thermal stability, and emit strong deep-blue  
light at 400 nm. The observed fluorescence intensities are  
much high than that of poly(1-phenyl-1-octyne), a well-known  
highly fluorescent acetylene. All the polyphenylenes effectively  
limit the 8-ns pulses of 532 nm laser light. These novel  
hyperbranched polyphenylenes are thus excellent optical limiting  
materials with high thermal stability.

IT 28408-99-3P 76307-47-6P 365568-89-4P  
365568-90-7P 365568-91-8P 365568-92-9P  
(light emitting and optical limiting properties of  
hyperbranched polyphenylenes)

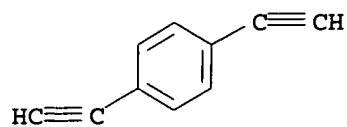
RN 28408-99-3 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with ethynylbenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 935-14-8

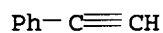
CMF C10 H6



CM 2

CRN 536-74-3

CMF C8 H6



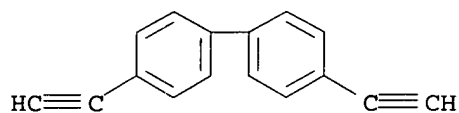
RN 76307-47-6 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with ethynylbenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 38215-38-2

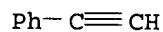
CMF C16 H10



CM 2

CRN 536-74-3

CMF C8 H6



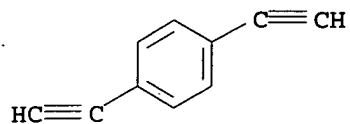
RN 365568-89-4 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with 1-octyne (9CI) (CA INDEX  
NAME)

CM 1

CRN 935-14-8

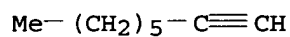
CMF C10 H6



CM 2

CRN 629-05-0

CMF C8 H14



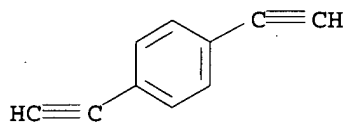
RN 365568-90-7 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with 1-dodecyne (9CI) (CA INDEX NAME)

CM 1

CRN 935-14-8

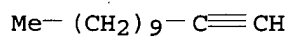
CMF C10 H6



CM 2

CRN 765-03-7

CMF C12 H22



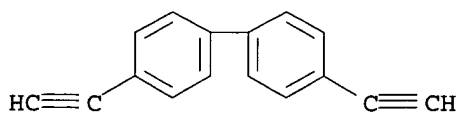
RN 365568-91-8 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-octyne (9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

CMF C16 H10



CM 2

CRN 629-05-0

CMF C8 H14

 $\text{Me}-(\text{CH}_2)_5-\text{C}\equiv\text{CH}$ 

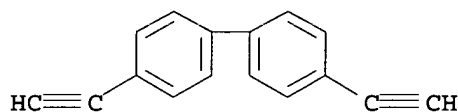
RN 365568-92-9 HCAPLUS

CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with 1-dodecyne (9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

CMF C16 H10



CM 2

CRN 765-03-7

CMF C12 H22

 $\text{Me}-(\text{CH}_2)_9-\text{C}\equiv\text{CH}$ 

CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 35, 73

IT 28408-99-3P 76307-47-6P 365568-89-4P

365568-90-7P 365568-91-8P 365568-92-9P

365568-93-0P 365568-94-1P 365568-95-2P

(light emitting and optical limiting properties of hyperbranched polyphenylenes)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 14 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:221050 HCAPLUS

DOCUMENT NUMBER: 135:20054

TITLE: Synthesis and photoluminescence of hyperbranched polyphenylenes

AUTHOR(S): Peng, Han; Xu, Kaitian; Luo, Jingdong; Tang, Ben Zhong

CORPORATE SOURCE: Department of Chemistry, Hong Kong University of Science &amp; Technology, Hong Kong, Peop. Rep. China

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(1), 560-561

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB Hyperbranched polyphenylenes with unique structure were synthesized by cyclotrimerization polymerization of diacetylenes with monoacetylenes. Copolymns. of 4,4'-diethynylbiphenyl and 1,4-diethynylbenzene with phenylacetylene and 1-naphthylacetylene were carried out using  $\text{TaCl}_5\text{-Ph}_4\text{Sn}$  as catalyst in toluene. The structure and mol. weight of the copolymers can be tailored by changing the feed ratio of diacetylene to monoacetylene. The structure and properties of the polyphenylenes were studied by IR, UV, NMR, TGA and fluorescence spectroscopy methods. The polyphenylenes have good solubility in common organic solvents and excellent thermal stability up to  $500^\circ$  and emit strong deep-blue light at about 400 nm when excited at 350 nm. The observed fluorescence intensity is much higher than that of poly(1-phenyl-1-octyne), a well-known highly fluorescent polymer. The hyperbranched polyphenylenes with unique structure are excellent luminescent materials with high thermal stability.

IT 28408-99-3P 76307-47-6P, 4,4'-Diethynylbiphenyl-phenylacetylene copolymer 99944-43-1P 343217-11-8P

(preparation via cyclotrimerization and photoluminescence of thermally stable hyperbranched polyphenylene polyacetylenes)

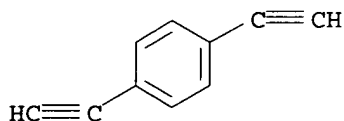
RN 28408-99-3 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with ethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 935-14-8

CMF C10 H6



CM 2

CRN 536-74-3

CMF C8 H6

Ph-C≡CH

RN 76307-47-6 HCAPLUS

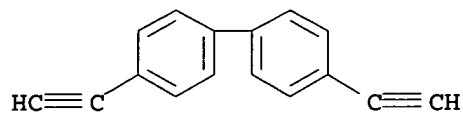
CN 1,1'-Biphenyl, 4,4'-diethynyl-, polymer with ethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

CMF C16 H10

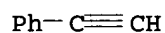




CM 2

CRN 536-74-3

CMF C8 H6



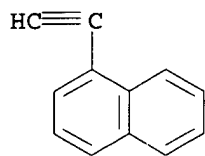
RN 99944-43-1 HCAPLUS

CN Benzene, 1,4-diethynyl-, polymer with 1-ethynylnaphthalene (9CI)  
(CA INDEX NAME)

CM 1

CRN 15727-65-8

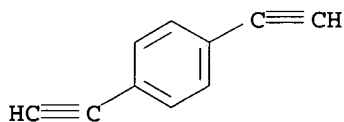
CMF C12 H8



CM 2

CRN 935-14-8

CMF C10 H6



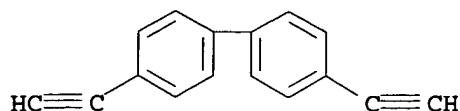
RN 343217-11-8 HCAPLUS

CN Naphthalene, 1-ethynyl-, polymer with 4,4'-diethynyl-1,1'-biphenyl  
(9CI) (CA INDEX NAME)

CM 1

CRN 38215-38-2

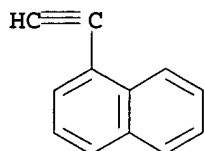
CMF C16 H10



CM 2

CRN 15727-65-8

CMF C12 H8



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73

IT 28408-99-3P 76307-47-6P, 4,4'-Diethynylbiphenyl-phenylacetylene copolymer 99944-43-1P 343217-11-8P

(preparation via cyclotrimerization and photoluminescence of thermally stable hyperbranched polyphenylene polyacetylenes)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:206603 HCAPLUS

DOCUMENT NUMBER: 134:367506

TITLE: Design and photofunctions of dendrimer-encapsulated poly(phenyleneethynylene)s

AUTHOR(S): Jiang, Dong-Lin; Sato, Takafumi; Aida, Takuzo

CORPORATE SOURCE: Department of Chemistry and Biotechnology, Graduate School of Engineering, The University of Tokyo, Tokyo, 113-8656, Japan

SOURCE: Chinese Journal of Polymer Science (2001), 19(2), 161-166

CODEN: CJPSEG; ISSN: 0256-7679

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of increasing generation dendrimer side-groups on phenylacetylene copolymers were synthesized. The light-harvesting antenna functions of dendrimer frame works together with the **blue-light** emitting activities of the phenylacetylene copolymers were highlighted. The phenylacetylene copolymer with largest dendrimer side-group gave a high emission quantum yield of 0.97, indicating that the dendrimers protect the conjugated backbone from collisional energy dissipation.

IT 135756-78-4DP, reaction products with 2,5-diethynylhydroquinone, polymers with p-diiodobenzene (dendritic; light-harvesting antenna dendritic-side-groups on

phenylacetylene copolymer that emits **blue light**)

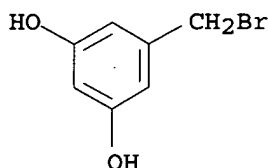
RN 135756-78-4 HCAPLUS

CN 1,3-Benzenediol, 5-(bromomethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 33617-40-2

CMF C7 H7 Br O2



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 35, 73

ST light harvesting antenna dendritic side group phenylacetylene copolymer; **blue light** emitting phenylacetylene copolymer dendritic side group

IT **Light**

(**blue; light**-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT Polyethers, properties

(dendrimers; light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT Conducting polymers

Electronic excitation

Fluorescence

(light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT Polyacetylenes, properties

(light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT Photosystems

(light-harvesting antenna; light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT Dendritic polymers

(polyethers; light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT 135756-78-4DP, reaction products with 2,5-diethynylhydroquinone, polymers with p-diiodobenzene

(dendritic; light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT 536-74-3DP, Ethynylbenzene, reaction products with phenylacetylene copolymer with dendritic-side-groups 252273-92-ODP,

ethynylbenzene terminated 252273-94-2DP, ethynylbenzene terminated 340232-49-7P 340232-50-0P

(light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT 75610-48-9 152811-37-5 176650-93-4 252273-95-3

(light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

IT 252273-91-9P 252273-93-1P

(monomer; light-harvesting antenna dendritic-side-groups on phenylacetylene copolymer that emits **blue light**)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 16 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:655692 HCAPLUS

DOCUMENT NUMBER: 133:335596

TITLE: Strongly fluorescent ethylene-bridged poly(para-phenylene) **ladder** polymers

AUTHOR(S): Forster, Michael; Scherf, Ullrich

CORPORATE SOURCE: Max-Planck-Institut fur Polymerforschung, Mainz, D-55128, Germany

SOURCE: Macromolecular Rapid Communications (2000), 21(12), 810-813

CODEN: MRCOE3; ISSN: 1022-1336

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

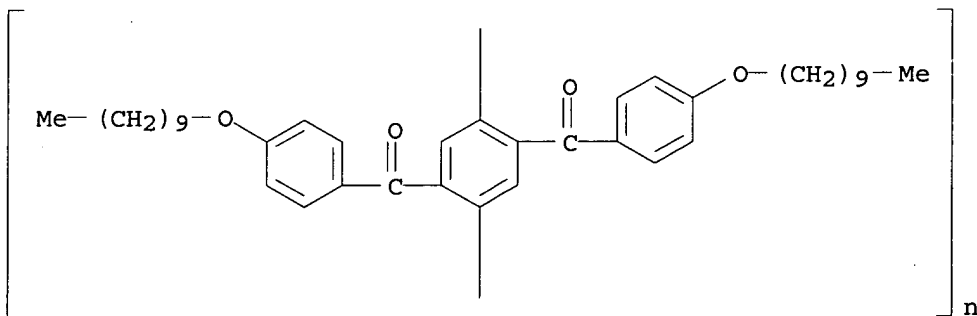
LANGUAGE: English

AB Fully soluble ethylene-bridged p-phenylene **ladder** poly(dihydrophenanthrene)s (LPDPs) were prepared via aryl-aryl homo-coupling according to the method of Yamamoto described by K. Chmil and U. Scherf (1993), followed by polymer-analogous pinacolization with SmI<sub>2</sub>. The strongly fluorescent polymers obtained were characterized by NMR, UV/Vis-, and photoluminescence (PL) measurements.

IT 192316-37-3DP, reductively cyclized (poly(dihydrophenanthrene)); preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

RN 192316-37-3 HCAPLUS

CN Poly[2,5-bis[4-(decyloxy)benzoyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

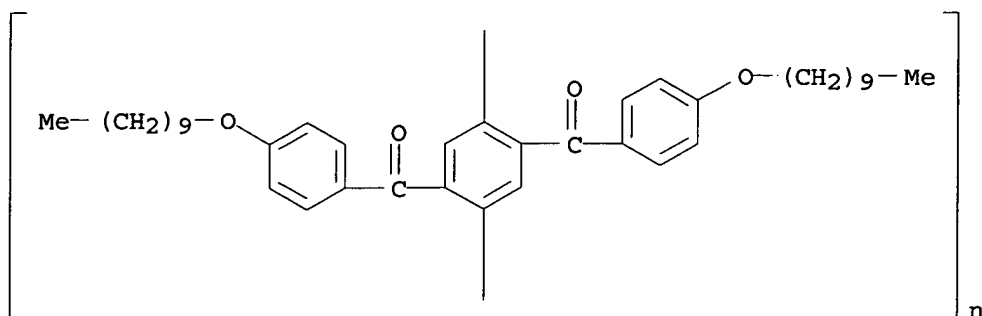


IT 192316-37-3P

(preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

RN 192316-37-3 HCAPLUS

CN Poly[2,5-bis[4-(decyloxy)benzoyl]-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73

ST polyphenylene **ladder** prepn coupling pinacolization sequence; samarium iodide pinacolization polydihydrophenanthrene **ladder** polymer prepn; fluorescent polyphenylene ethylene bridged **ladder** polymer

IT Coupling reaction

**Luminescence**

(preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT **Ladder** polymers

Polyphenyls

(preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT Cyclization

(reductive; preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT Polymer chains

(rigid; preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT 32248-43-4, Samarium iodide (SmI<sub>2</sub>)

(cyclization reagent; preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT 147833-55-4DP, reductively cyclized 192316-37-3DP, reductively cyclized

(poly(dihydrophenanthrene); preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

IT 1295-35-8, Bis(1,5-cyclooctadiene)nickel

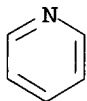
(polymerization catalyst; preparation of strongly fluorescent decylbenzoyl-p-phenylene **ladder** polymers via coupling and cyclization and effect of rigidity on **luminescence**)

)  
IT 147833-55-4DP, reductively cyclized 192316-37-3P  
(preparation of strongly fluorescent decylbenzoyl-p-phenylene  
ladder polymers via coupling and cyclization and effect  
of rigidity on luminescence)  
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1999:558357 HCAPLUS  
DOCUMENT NUMBER: 131:329154  
TITLE: Synthesis and optical properties of a series  
of pyrrolopyridazine derivatives: deep blue  
organic luminophors for electroluminescent  
devices  
AUTHOR(S): Cheng, Yang; Ma, Bin; Wudl, Fred  
CORPORATE SOURCE: Exotic Materials Institute and Department of  
Chemistry and Biochemistry, University of  
California, Los Angeles, CA, 90095, USA  
SOURCE: Journal of Materials Chemistry (1999), 9(9),  
2183-2188  
CODEN: JMACEP; ISSN: 0959-9428  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The authors describe a systematic study of eight blue  
light-emitting mols. which can be prepared in one step from  
inexpensive com. starting materials. The relative luminescence  
quantum yield can be  $\leq 84\%$  and the heterocycles are  
luminescent in the condensed state, either as solids or as oils,  
indicating that there is no self-quenching in this system. The  
last observation augurs well for these heterocycles being useful  
in the fabrication of deep blue light-emitting  
devices.

IT 16969-45-2P  
(synthesis and optical properties of a series of  
pyrrolopyridazine derivs. and their protonated forms)  
RN 16969-45-2 HCAPLUS  
CN Pyridine, conjugate acid (8CI, 9CI) (CA INDEX NAME)



● H<sup>+</sup>

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other  
Related Properties)  
Section cross-reference(s): 22, 28  
IT 7593-61-5DP, protonated 7605-03-0DP, protonated  
16969-45-2P  
(synthesis and optical properties of a series of  
pyrrolopyridazine derivs. and their protonated forms)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 18 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:437450 HCAPLUS

DOCUMENT NUMBER: 131:177038

TITLE: A comparative study on the properties of  
poly(2,5-dimethoxy-1,4-phenylene vinylene) by  
the CPR and Wessling methods

AUTHOR(S): Wang, Y. M.; Gan, Y. Y.; Kang, E. T.; Gan, L.  
H.

CORPORATE SOURCE: School of Science, Nanyang Technological  
University, Singapore, 259756, Singapore

SOURCE: Journal of Applied Polymer Science (1999),  
73(11), 2177-2181

CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

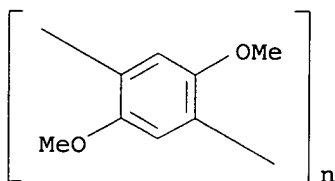
LANGUAGE: English

AB Poly(2,5-dimethoxy-1,4-phenylene vinylene) (PDMoPV) prepared via the  
Cl precursor route (CPR) exhibits absorption at a shorter  
wavelength than that obtained by the Wessling method. The polymer  
fluoresces at a maximum of 505 nm as compared to 540 nm by Wessling  
method. Both the fabricated ITO-PDMoPV (via CPR)-Al and  
ITO/PDMoPV (via Wessling method)-Al devices emit green-  
blue light and the turn-on voltages are  
relatively low at 7 and 4 V, resp. Significantly, the device  
fabricated using PDMoPV via CPR has a higher output than that via  
the Wessling method.

IT 62271-79-8P, Poly(2,5-dimethoxy-1,4-phenylene)  
(comparative study on properties of poly(dimethoxyphenylene  
vinylene) by chlorine precursor routh and Wessling methods with  
LED, and fluorescence optical and elec. properties)

RN 62271-79-8 HCAPLUS

CN Poly(2,5-dimethoxy-1,4-phenylene) (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 35, 36, 76

IT 62271-79-8P, Poly(2,5-dimethoxy-1,4-phenylene)  
(comparative study on properties of poly(dimethoxyphenylene  
vinylene) by chlorine precursor routh and Wessling methods with  
LED, and fluorescence optical and elec. properties)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:779182 HCAPLUS

DOCUMENT NUMBER: 130:110705  
 TITLE: Electroactive materials containing macrocyclic pseudo-crown ether cavities electroformed from a solid-state electropolymerization reaction  
 AUTHOR(S): Fabre, Bruno; Marrec, Philippe; Simonet, Jacques  
 CORPORATE SOURCE: Laboratoire d'Electrochimie Moleculaire et Macromoleculaire, Unite Mixte de Recherche du CNRS No. 6510, Universite de Rennes I, Rennes, 35042, Fr.  
 SOURCE: Journal of the Electrochemical Society (1998), 145(12), 4110-4119  
 CODEN: JESOAN; ISSN: 0013-4651  
 PUBLISHER: Electrochemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

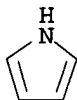
AB Monomers comprising aromatic groups (pyrrole/thiophene, pyrrole/dimethoxybenzene, and dimethoxybenzene/thiophene) linked by an ether chain were prepared, and subjected to two-step electropolymerization. In the first step, at relatively low anodic potential, oxidation of the pyrrole moiety in the monomer led to electroactive homopolymer films containing pendant aromatic moieties. Subsequent oxidation of the homopolymers by applying more positive potentials promoted anodic coupling of the pendant moiety, the thiophene, within the structure. The efficiency of this solid-state electropolymerization reaction was strongly dependent on film thickness. The resulting electroactive polymers have controllable size pseudo-crown ether cavities in a ladder-like structure. The polymers are electrochemically stable and have redox reversibility, and the reticulation step did not affect the conjugation of the polymer obtained in the first step. SEM images indicate a tortuous and irregular surface of the polymers, more so in the second-stage structure which also showed convolutions under high magnification. The polymers have potential for complexation with cations through the ether cavities.

IT 30604-81-0P, Polypyrrole  
 (polythiophene, ladder; preparation and electroactivity of poly(pyrrole-thiophene)s with pseudo-crown ether cavity and ladder structure by electropolymerization.)

RN 30604-81-0 HCAPLUS  
 CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7  
 CMF C4 H5 N



CC 35-7 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 36, 72

ST pyrrolyletherthiophene monomer electrochem polymer two stage; crown ether like cavity pyrrolyletherthiophene electroactive polymer; anodic coupling thiophene polypyrrole ether linkage conducting polymer; conjugated polypyrrole polythiophene ether ladder



- polymer
- IT Polymers, preparation  
(conjugated, polypyrrole polythiophenes, **ladder**;  
preparation and electroactivity of poly(pyrrole-thiophene)s with  
pseudo-crown ether cavity and **ladder** structure by  
electropolymer.)
- IT Coupling reaction  
(electrochem., anodic; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT Polymerization  
(electrochem., oxidative and anodic coupling; preparation and  
electroactivity of poly(pyrrole-thiophene)s with pseudo-crown  
ether cavity and **ladder** structure by electropolymer.)
- IT Redox reaction  
(electrochem.; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT Conducting polymers  
(polypyrrole polythiophene **ladder**; preparation and  
electroactivity of poly(pyrrole-thiophene)s with pseudo-crown  
ether cavity and **ladder** structure by electropolymer.)
- IT **Ladder** polymers  
(polypyrrole polythiophenes; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT Polymers, preparation  
(polypyrrole-polythiophene, **ladder**; preparation and  
electroactivity of poly(pyrrole-thiophene)s with pseudo-crown  
ether cavity and **ladder** structure by electropolymer.)
- IT Polymers, preparation  
(polythiophenes, polymethoxyphenyl side chain; preparation and  
electroactivity of poly(pyrrole-thiophene)s with pseudo-crown  
ether cavity and **ladder** structure by electropolymer.)
- IT Optical absorption  
(preparation and electroactivity of poly(pyrrole-thiophene)s with  
pseudo-crown ether cavity and **ladder** structure by  
electropolymer.)
- IT Polymer chains  
(side, pseudo crown ether; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT 219690-53-6P 219690-54-7P  
(**ladder**, pseudo-crown cavity; preparation and  
electroactivity of poly(pyrrole-thiophene)s with pseudo-crown  
ether cavity and **ladder** structure by electropolymer.)
- IT 75-05-8, Acetonitrile, uses 429-42-5, Tetrabutylammonium  
tetrafluoroborate  
(polymerization electrolyte; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT 30604-81-0P, Polypyrrole  
(polythiophene, **ladder**; preparation and electroactivity of  
poly(pyrrole-thiophene)s with pseudo-crown ether cavity and  
**ladder** structure by electropolymer.)
- IT 219690-55-8P  
(preparation and electroactivity of poly(pyrrole-thiophene)s with  
pseudo-crown ether cavity and **ladder** structure by  
electropolymer.)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L51 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:336241 HCAPLUS

DOCUMENT NUMBER: 129:46944

TITLE: Self-assembled multilayers and  
photoluminescence properties of a new  
water-soluble poly(para-phenylene)

AUTHOR(S): Shi, Xiaobo; Li, DeQuan; Lutt, M.;  
Fitzsimmons, M. R.; Van Patten, G. P.

CORPORATE SOURCE: Chemical Science and Technology Division(CST4)  
and Manuel Lujan Jr. Neutron Scattering  
Center, Los Alamos National Laboratory, Los  
Alamos, NM, 87545, USA

SOURCE: Materials Research Society Symposium  
Proceedings (1998), 488(Electrical, Optical,  
and Magnetic Properties of Organic Solid-State  
Materials IV), 133-140  
CODEN: MRSPDH; ISSN: 0272-9172

PUBLISHER: Materials Research Society

DOCUMENT TYPE: Journal

LANGUAGE: English

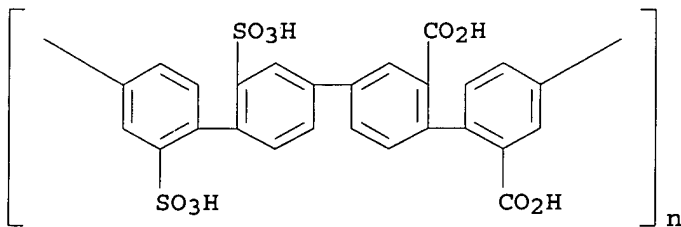
AB This paper reports the synthesis and characterizations of a new  
water-soluble poly(para-phenylene) (PPP) and its applications in  
preparing self-assembled multi-layer films. This new water-soluble  
conducting polymer was prepared through the sulfonation reaction of  
poly(p- quarterphenylene-2,2'-dicarboxylic acid). The  
incorporation of sulfonate groups has dramatically improved PPP's  
solubility in H<sub>2</sub>O at a wide pH range, whereas previous PPP is only  
slightly soluble in basic solns. Dilute aqueous solns. of this polymer  
with acidic, neutral or basic pH emit brilliant **blue**  
**light** while irradiated with UV light. The sulfonated PPP  
emits from 350 nm to 455 nm with a maximum intensity at 380 nm.  
Self-assembled multilayers of this sulfonated PPP were constructed  
with a pos. charged polymer poly(diallyl di-Me ammonium chloride)  
and characterized with various surface analyses. Conductive (RuO<sub>2</sub>  
and ITO), semiconductive (Si wafer), and nonconductive (SiO<sub>2</sub>)  
substrates were used in the preparation of self-assembled multilayers.  
Elec., optical and structural properties of these novel  
self-assembled thin films are discussed.

IT 208389-57-5P

(self-assembled multilayers and photoluminescence properties of  
a new water-soluble poly(para-phenylene))

RN 208389-57-5 HCAPLUS

CN Poly[(2,2'-dicarboxy-3'',2'''-disulfo[1,1':4',1'':4'',1'''-  
quaterphenyl]-4,4'''-diyl)] (9CI) (CA INDEX NAME)

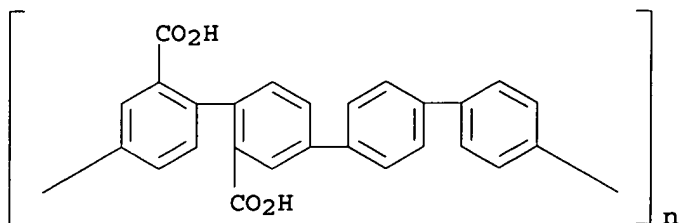


IT 135615-40-6

(self-assembled multilayers and photoluminescence properties of a new water-soluble poly(para-phenylene) prepared by sulfonation of)

RN 135615-40-6 HCAPLUS

CN Poly(2,2'-dicarboxy[1,1':4',1'':4'',1'''-quaterphenyl]-4,4'''-diyl) (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 36, 38

IT 208389-57-5P

(self-assembled multilayers and photoluminescence properties of a new water-soluble poly(para-phenylene))

IT 135615-40-6

(self-assembled multilayers and photoluminescence properties of a new water-soluble poly(para-phenylene) prepared by sulfonation of)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 21 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:89779 HCAPLUS

DOCUMENT NUMBER: 128:115314

TITLE: Water Soluble Photo- and Electroluminescent Alkoxy-Sulfonated Poly(p-phenylenes) Synthesized via Palladium Catalysis

AUTHOR(S): Kim, Seungho; Jackiw, Jennifer; Robinson, Edward; Schanze, Kirk S.; Reynolds, John R.; Baur, Jeff; Rubner, Michael F.; Boils, Danielle

CORPORATE SOURCE: Department of Chemistry Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611, USA

SOURCE: Macromolecules (1998), 31(4), 964-974

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Water-soluble poly(p-phenylene) derivs., poly[2,5-bis(3-sulfonatopropoxy)-1,4-phenylene-alt-1,4-phenylene] sodium salt (PPP-OPSO3) and poly[2,5-bis(3-sulfonatopropoxy)-1,4-phenylene-alt-4,4'-biphenylene] sodium salt (PPBP-OPSO3), were synthesized through a Suzuki coupling reaction of 1,4-dibromo-2,5-bis(3-sulfonatopropoxy)benzene sodium salt with 1,4-phenylenediboronic acid or 4,4'-biphenyldiyldiboronic acid 2,2'-dimethylpropyl diester using a water-soluble Pd(0) catalyst or Pd(OAc)2. The pH dependence of the coupling reaction was investigated and resulted in pH independence at pH levels greater than 10.0. End group anal. of PPP-OPSO3 via 1H NMR of tert-Bu end-capped polymers

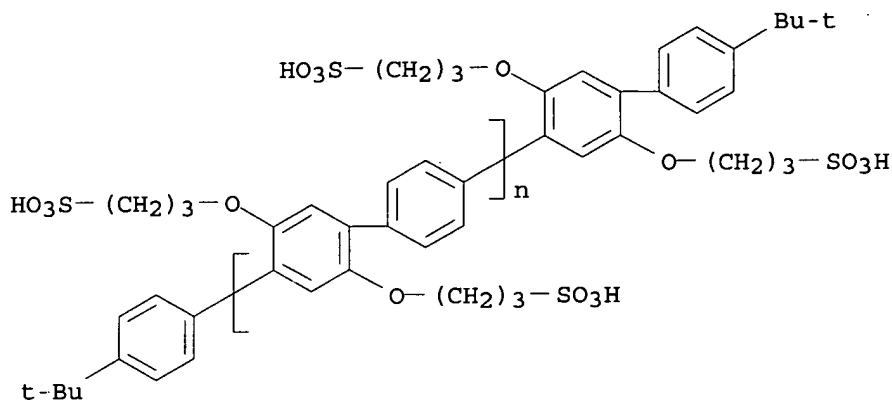
indicates d.p. in excess of 40 (ca. 80 rings per chain). Viscometric anal. of PPP-OPSO3 in water shows a behavior comparable to sodium poly(styrenesulfonate) (PSS) of mol. weight 8000. In addition, the polyelectrolyte effect is observed at low polymer concns. The  $\lambda_{\max}$  of the  $\pi \rightarrow \pi^*$  absorption for PPP-OPSO3 is found at 339-342 nm, while that of PPBP-OPSO3 shows a bathochromic shift to 349-352 nm. All of the water-soluble PPP oligomers and polymers feature strong blue fluorescence. The fluorescence has been characterized by quantum yield and lifetime studies. Nanosecond-microsecond laser flash photolysis expts. indicate that direct excitation of the polymers in the near-UV leads to triplet state formation, albeit with comparatively low efficiency. Multilayered films of PPP-OPSO3 were fabricated with poly(ethyleneimine) (PEI) using layer-by-layer self-assembly and incorporated into blue-light-emitting devices.

IT 201605-68-7P

(preparation and characterization of)

RN 201605-68-7 HCAPLUS

CN Poly[2,5-bis(3-sulfopropoxy) [1,1'-biphenyl]-4,4'-diyl],  
 $\alpha$ -[4-(1,1-dimethylethyl)phenyl]- $\omega$ -[4'-(1,1-dimethylethyl)-2,5-bis(3-sulfopropoxy) [1,1'-biphenyl]-4-yl]-,  
 sodium salt (9CI) (CA INDEX NAME)



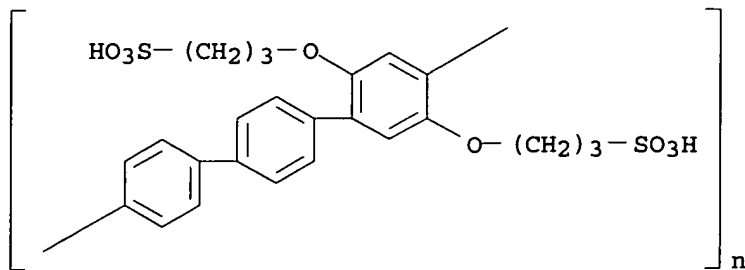
●x Na

IT 174721-53-0P

(preparation of water-soluble photo- and electroluminescent)

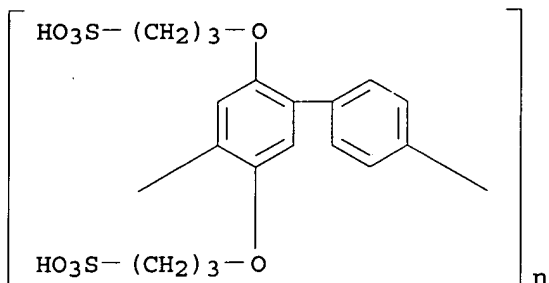
RN 174721-53-0 HCAPLUS

CN Poly[2,5-bis(3-sulfopropoxy) [1,1':4',1''-terphenyl]-4,4''-diyl  
 disodium salt] (9CI) (CA INDEX NAME)



●2 Na

IT 153986-30-2P  
 (preparation of water-soluble photo- and electroluminescent)  
 RN 153986-30-2 HCAPLUS  
 CN Poly[2,5-bis(3-sulfopropoxy) [1,1'-biphenyl]-4,4'-diyl disodium salt] (9CI) (CA INDEX NAME)



●2 Na

CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 73  
 IT 123324-71-0DP, (4-tert-Butylphenyl)boronic acid, reaction products  
 with alkoxy-sulfonated polyphenylenes 174697-31-5DP, reaction  
 products with (tert-butylphenyl)boronic acid 201605-68-7P  
 (preparation and characterization of)  
 IT 174721-53-0P 201605-64-3P  
 (preparation of water-soluble photo- and electroluminescent)  
 IT 153986-30-2P 174697-31-5P, 1,4-Dibromo-2,5-bis(3-  
 sulfonatopropoxy)benzene disodium salt-1,4-phenylenediboronic acid  
 copolymer  
 (preparation of water-soluble photo- and electroluminescent)  
 REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L51 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1997:611611 HCAPLUS  
 DOCUMENT NUMBER: 127:307757

TITLE: Novel chiral poly(p-phenylene) derivatives containing cyclophane-type moieties

AUTHOR(S): Fiesel, Rainer; Huber, Joachim; Apel, Ute; Enkelmann, Volker; Hentschke, Reinhard; Scherf, Ullrich; Cabrera, Karin

CORPORATE SOURCE: Max-Planck-Institut Polymerforschung, Mainz, D-55128, Germany

SOURCE: Macromolecular Chemistry and Physics (1997), 198(9), 2623-2650  
CODEN: MCHPES; ISSN: 1022-1352

PUBLISHER: Huethig & Wepf

DOCUMENT TYPE: Journal

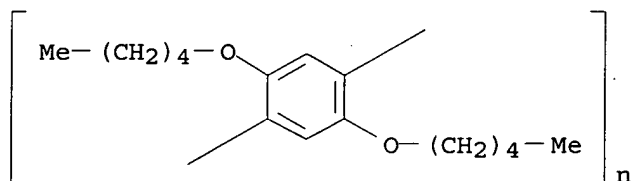
LANGUAGE: English

AB The introduction of cyclic ansa-substituents allows for the synthesis of soluble poly(p-phenylene)s (PPP's) possessing main chain chirality. The novel chiral PPP's represent an attractive combination of  $\pi$ -conjugated character and chirality. The authors have synthesized open chain (single-stranded) as well as **ladder**-type chiral PPP's. The single-stranded chiral PPP's exhibit temperature-dependent changes of chiroptical properties. The behavior should be assigned to conformational changes. The chiral **ladder** polymers contain the cyclophane loops exclusively on one side of the mol. board and are characterized by an unexpectedly high chiroptical activity of the  $\pi$ - $\pi^*$ -transition. They are potential candidates to study non-linear chiroptical properties and to investigate circular polarized **luminescence** (photo- and **electroluminescence**) effects.

IT 196870-84-5P, Poly[2,5-bis(pentyloxy)-1,4-phenylene] (preparation and properties of chiral poly(p-phenylene)s containing cyclophane-type moieties)

RN 196870-84-5 HCAPLUS

CN Poly[2,5-bis(pentyloxy)-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

IT **Ladder** polymers (preparation and properties of chiral poly(p-phenylene) derivs. containing cyclophane-type moieties)

IT 196870-83-4P 196870-84-5P, Poly[2,5-bis(pentyloxy)-1,4-phenylene] 196870-85-6P 196870-86-7P 196965-78-3P 197251-96-0P 197251-97-1P 197316-07-7P 197316-08-8P (preparation and properties of chiral poly(p-phenylene)s containing cyclophane-type moieties)

L51 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:382204 HCAPLUS

DOCUMENT NUMBER: 127:82378

TITLE: Light-emitting diode based on oligo-phenylene vinylene and butyl-PBD blends

AUTHOR(S): Lee, Jae-Gyoung; Park, Byoungchoo; Woo,

Hyung-Suk; Kim, Youngkyoo; Ha, Chang-Sik; Lee, Choong-Man; Jeong, Kwangho; Ha, Jeong-Hyon; Kim, Yong-Rok

CORPORATE SOURCE: Electronic Materials Lab., Institute for Advanced Engineering, Kyonggi-Do, S. Korea

SOURCE: Solid State Communications (1997), 102(12), 895-898

CODEN: SSCO44; ISSN: 0038-1098

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors have fabricated light-emitting diodes (LEDs) using organic materials; a polymer blend dispersing oligophenylenevinylene (oligo-PV), 1,4-distyrylbenzene and 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (butyl-PBD) as emissive materials into a soluble polyimide mixed with polyaniline (PANI) of emeraldine salt used as a hole transport material. These polymer dispersed materials were sandwiched between In and indium-tin-oxide (ITO) electrodes. In order to increase the electron injection into the emissive materials, we have inserted a thin Mg layer between In and polymer blends. The electroluminescence (EL) spectra of LEDs showed noticeable enhancement of the oscillator strength of oligo-PV peak at 2.76 eV. This implies improved quantum efficiency of this **blue light**-emitting diode, resulting from the excitonic migration from butyl-PBD to oligo-PV. We have found that the EL device with host polymers, polyimide and PANI, displayed increasing device performance, lowering the turning point in I-V characteristics, compared to that of LED without PANI. Under normal illumination conditions, our devices with PANI showed visible blue-violet color at room temperature after applying a bias exceeding 8 V.

IT 25233-30-1P, Polyaniline  
(emeraldine salt form; fabrication and performance of light-emitting diodes based on oligophenylenevinylene-polymer blends)

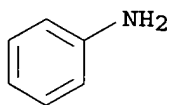
RN 25233-30-1 HCAPLUS

CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3

CMF C6 H7 N

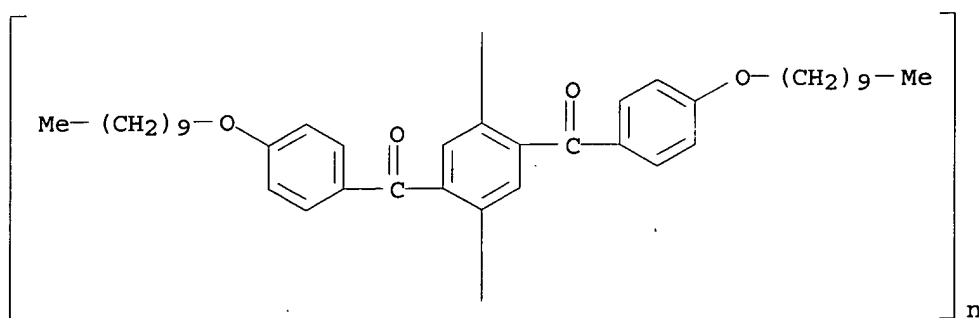


CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 73, 76

IT 25233-30-1P, Polyaniline  
(emeraldine salt form; fabrication and performance of light-emitting diodes based on oligophenylenevinylene-polymer blends)

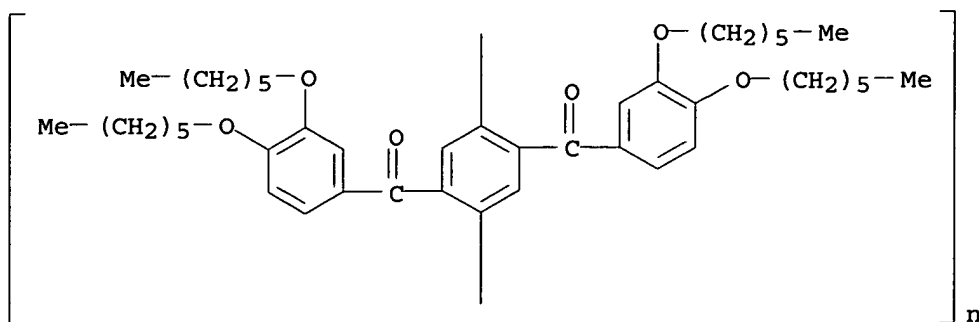
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 24 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1997:341555 HCAPLUS  
 DOCUMENT NUMBER: 127:109279  
 TITLE: Conjugated all-carbon ladder  
 polymers. Improved solubility and molecular  
 weights  
 AUTHOR(S): Chmil, K.; Scherf, U.  
 CORPORATE SOURCE: Max-Planck-Institut Polymerforschung, Mainz,  
 D-55128, Germany  
 SOURCE: Acta Polymerica (1997), 48(5-6), 208-211  
 CODEN: ACPODY; ISSN: 0323-7648  
 PUBLISHER: VCH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A synthesis of the title polymers is achieved with a more highly  
 substituted monomer than previously used: 2,5-dibromo-1,4-bis(3,4-  
 dihexyloxybenzoyl)benzene, allowing the synthesis of enlarged  
 polymer chains with  $M_n \approx 12000$  and  $M_w \approx 22000$ ,  
 corresponding to a condensation of about 18 phenylene units. The  
 first step, formation of the polymeric, open-chain precursor, is  
 an AA-type coupling using  $Ni(CO)_2$  for the dehalogenation with  
 co-reagents 2,2'-bipyridine and 1,5-cyclooctadiene with  
 dimethylacetamide or DMF as solvent. The cyclization is carried  
 out using  $B_2S_3$  generated in situ from  $BCl_3$  and tricyclohexyltin  
 sulfide, leading to formation of thioketones which dimerize to  
 form cyclic disulfide bridges followed by elimination of  $S_2$  to  
 give the conjugated aromatic ladder polymer, whose  
 structure and mol. weight is confirmed by NMR, UV/vis spectra,  
 photoluminescence spectra, and GPC.  
 IT 192316-37-3D, reductive cyclized  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 RN 192316-37-3 HCAPLUS  
 CN Poly[2,5-bis[4-(decyloxy)benzoyl]-1,4-phenylene] (9CI) (CA INDEX  
 NAME)

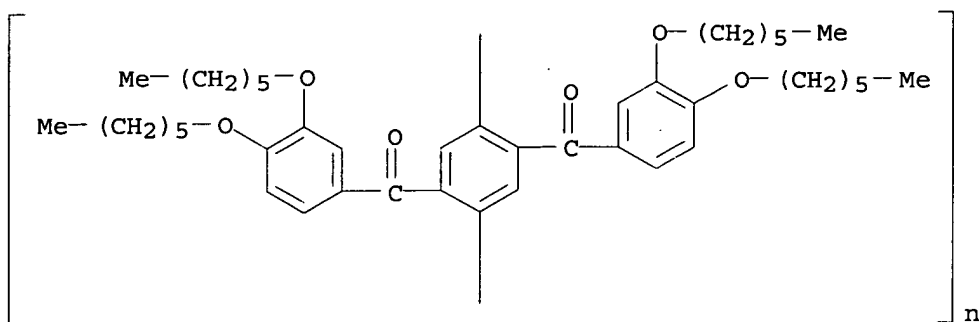


IT 192316-36-2P, 2,5-Dibromo-1,4-bis(3,4-  
 dihexyloxybenzoyl)benzene homopolymer, sr  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 RN 192316-36-2 HCAPLUS  
 CN Poly[2,5-bis[3,4-bis(hexyloxy)benzoyl]-1,4-phenylene] (9CI) (CA  
 INDEX NAME)



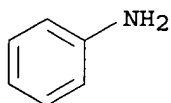


IT 192316-36-2DP, reductive cyclized  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 RN 192316-36-2 HCAPLUS  
 CN Poly[2,5-bis[3,4-bis(hexyloxy)benzoyl]-1,4-phenylene] (9CI) (CA  
 INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 36, 73  
 ST polymer carbon conjugated ladder polyacene synthesis  
 IT Luminescence  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 IT Polyphenyls  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 IT Ladder polymers  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 IT 147833-55-4D, reductive cyclized 192316-37-3D, reductive  
 cyclized  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 IT 192316-35-1P, 2,5-Dibromo-1,4-bis(3,4-dihexyloxybenzoyl)benzene  
 homopolymer 192316-36-2P, 2,5-Dibromo-1,4-bis(3,4-  
 dihexyloxybenzoyl)benzene homopolymer, sru  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)  
 IT 192316-35-1DP, reductive cyclized 192316-36-2DP,  
 reductive cyclized  
 (preparation and properties of conjugated all-carbon ladder  
 polymers with improved solubility)

L51 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1995:806225 HCAPLUS  
DOCUMENT NUMBER: 124:30525  
TITLE: Bright blue electroluminescence from an  
oxadiazole-containing copolymer  
AUTHOR(S): Pei, Qibing; Yang, Yang  
CORPORATE SOURCE: UNIAX Corp., Santa Barbara, CA, 93117, USA  
SOURCE: Advanced Materials (Weinheim, Germany) (1995),  
7(6), 559-61  
CODEN: ADVMEW; ISSN: 0935-9648  
PUBLISHER: VCH  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Blue electroluminescence of a synthesized polyoxadiazole-polyether  
(OP) film is reported. LED devices were prepared by combination of  
this OP film with other polymeric layers (e.g. conducting  
polyaniline) between In-Sn-oxide and a Ca electrode. The external  
quantum efficiency was increased to 0.1% and the intensity of the  
blue emitted light to 40 cd/m2.  
IT 25233-30-1, Polyaniline  
(dodecylbenzenesulfonic acid-doped; quantum efficiency of LEDs  
with oxadiazole-containing polymeric layers)  
RN 25233-30-1 HCAPLUS  
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)  
CM 1  
CRN 62-53-3  
CMF C6 H7 N

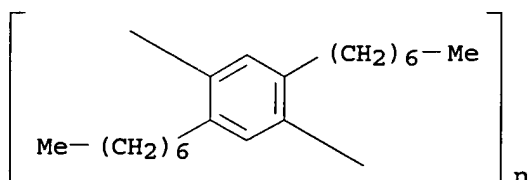


CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 73  
IT 25233-30-1, Polyaniline  
(dodecylbenzenesulfonic acid-doped; quantum efficiency of LEDs  
with oxadiazole-containing polymeric layers)

L51 ANSWER 26 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1995:576198 HCAPLUS  
DOCUMENT NUMBER: 122:292686  
TITLE: Blue electroluminescence from  
poly(2,5-diheptyloxy-1,4-phenylene)  
AUTHOR(S): Hamaguchi, Maki; Yoshino, Katsumi  
CORPORATE SOURCE: Dept. Elec. Eng., Osaka Univ., Osaka, 565,  
Japan  
SOURCE: Japanese Journal of Applied Physics, Part 2:  
Letters (1995), 34(5A), L587-L589  
CODEN: JAPLD8; ISSN: 0021-4922  
PUBLISHER: Japanese Journal of Applied Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Poly(2,5-diheptyloxy-1,4-phenylene) has been prepared by oxidative  
coupling of p-diheptyloxybenzene using iron(III) chloride as

catalyst in chloroform at room temperature. The polymer obtained was completely soluble in chloroform. An electroluminescence diode based on this polymer emitting **blue light** was fabricated, and its properties are discussed in terms of the band structure of the diode.

IT 130870-49-4P, Poly(2,5-diheptyl-1,4-phenylene)  
 (fabrication and characteristics of blue electroluminescent diodes from poly(diheptyloxyphenylene) prepared via oxidative polymerization)  
 RN 130870-49-4 HCAPLUS  
 CN Poly(2,5-diheptyl-1,4-phenylene) (9CI) (CA INDEX NAME)

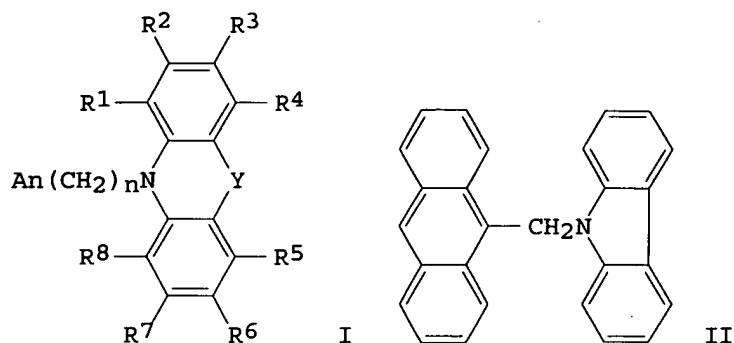


CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 35, 37, 73  
 IT 130870-49-4P, Poly(2,5-diheptyl-1,4-phenylene)  
 (fabrication and characteristics of blue electroluminescent diodes from poly(diheptyloxyphenylene) prepared via oxidative polymerization)

L51 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1994:680541 HCAPLUS  
 DOCUMENT NUMBER: 121:280541  
 TITLE: Preparation of (anthracenyl)alkylheterocycles as electroluminescent compounds  
 INVENTOR(S): Uchino, Masazumi; Uchida, Manabu; Izumisawa, Jusho; Yoshizawa, Satoru; Furukawa, Kenji  
 PATENT ASSIGNEE(S): Chisso Corp, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06206865	A2	19940726	JP 1993-277529	1993 1008
PRIORITY APPLN. INFO.:			JP 1992-301761	A1 1992 1014

OTHER SOURCE(S): MARPAT 121:280541  
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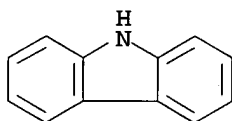


AB The title compds. I [An = anthracene; n = 1 or 2; Y = bond, S, etc.; R1 - R8 = H, halo, etc.] are prepared. Carbazole derivative II was prepared from 9-chloromethylantracene and carbazole potassium salt. An electroluminescent element containing II showed a **blue light** under voltage 28 V.

IT 6033-87-0, Carbazole potassium salt  
(preparation of (anthracenyl)alkylheterocycles as electroluminescent compds.)

RN 6033-87-0 HCAPLUS

CN 9H-Carbazole, potassium salt (9CI) (CA INDEX NAME)



● K

IC ICM C07D209-86  
ICS C07D209-88; C07D219-02; C07D219-06; C07D241-46; C07D241-52;  
C07D265-38; C07D279-22; C09K011-06

ICA G03G005-06

CC 27-11 (Heterocyclic Compounds (One Hetero Atom))

Section cross-reference(s): 28, 73

IT 92-84-2, Phenothiazine 135-67-1, Phenoxazine 6033-87-0  
, Carbazole potassium salt 6624-23-3, 9-Anthraceneacetic acid  
24463-19-2, 9-Chloromethylantracene 122875-66-5  
(preparation of (anthracenyl)alkylheterocycles as electroluminescent compds.)

L51 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:128426 HCAPLUS

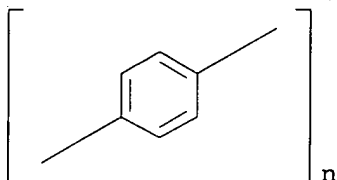
DOCUMENT NUMBER: 106:128426

TITLE: Optical excitation in highly crystalline  
polyparaphenylene

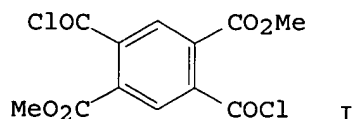
AUTHOR(S): Leising, Gunther; Leitner, O.; Aldrian, F.;  
Kahlert, Hartmut W.

CORPORATE SOURCE: Inst. Festkoerperphys., Tech. Univ. Graz,  
Graz, A-8010, Austria

SOURCE: Synthetic Metals (1987), 17(1-3), 635-8  
CODEN: SYMEDZ; ISSN: 0379-6779  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Highly crystalline poly(p-phenylene) was synthesized starting from a benzene/p-terphenyl mixture, which was polymerized in analogy to the Kovacic-procedure. The high crystallinity of the as prepared polymer and its increase by annealing is demonstrated by x-ray diffraction. On excitation with **blue light** (360 nm) a broad red luminescence peak appears around 700 nm. This emission and the corresponding high-energy absorption at .apprx.360 nm are explained by electron-hole photoexcitation, lattice relaxation to a polaron-exciton defect and recombination luminescence emission.  
IT **25190-62-9P**, Poly(p-phenylene)  
(preparation and luminescence and crystallinity of)  
RN 25190-62-9 HCAPLUS  
CN Poly(1,4-phenylene) (9CI) (CA INDEX NAME)



CC 73-6 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 36  
IT **25190-62-9P**, Poly(p-phenylene)  
(preparation and luminescence and crystallinity of)  
L51 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1977:107087 HCAPLUS  
DOCUMENT NUMBER: 86:107087  
TITLE: **Ladder** and partial **ladder** polyquinones  
AUTHOR(S): Saltybaev, D. K.; Zhubanov, B. A.  
CORPORATE SOURCE: USSR  
SOURCE: Vestnik Akademii Nauk Kazakhskoi SSR (1976), (11), 29-35  
CODEN: VANKAM; ISSN: 0002-3213  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
GI



AB The mechanism of polyquinone formation via the acylation of arenes or heterocyclic compds. with pyromellitic dianhydride [89-32-7] or its derivative I [19014-14-3] in the presence of metal chlorides is

discussed and the polyquinone obtained by acylation with I in the presence of FeCl<sub>3</sub> [7705-08-0] is described. The use of FeCl<sub>3</sub> instead of the usual AlCl<sub>3</sub> catalyst led to higher viscosities for the polyketo ester prepolymers, but the prepolymers were also partially cyclized. High radiation resistance was observed for the ladder polyquinones. Data are given for the partial ladder I-carbazole prepolymers [58317-00-3].

IT 58317-00-3P

(ladder and semi-ladder, properties and mechanism of preparation of)

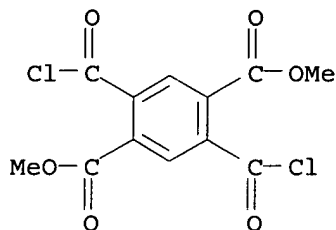
RN 58317-00-3 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, 2,5-bis(chlorocarbonyl)-, dimethyl ester, polymer with 9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 19014-14-3

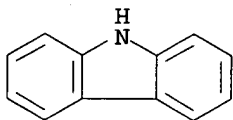
CMF C12 H8 C12 O6



CM 2

CRN 86-74-8

CMF C12 H9 N



CC 35-4 (Synthetic High Polymers)

ST polyquinone acylation prepn mechanism; arene acylation polymn pyromellitic anhydride; heterocycle acylation polymn pyromellitic anhydride; carbazole acylation polymn pyromellitic deriv; polyketo ester carbazole pyromellitic deriv; ladder polyquinone pyromellitic acylation; iron chloride polymn catalyst

IT Ladder polymers

(polyquinones, preparation and properties of, from pyromellitic acylation polymerization of arenes or heterocyclic compds.)

IT 58317-00-3P

(ladder and semi-ladder, properties and mechanism of preparation of)